Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ per:\_\_\_

**Worksheet- Reaction Rates**

1. Suppose two molecules that can react collide. What **3** circumstances need to occur for the molecules to react?

2. What does the **activation energy** for a chemical reaction mean?

3. What role does the **reactivity of the reactants** play in determining the rate of a chemical reaction?

4. Using the **collision theory**, explain why sugar sprinkled over a Bunsen burner reacts more quickly than a **chunk** of the same solid.

5. Use the **collision theory** to explain why **increasing the concentration** of a reactant usually increases the reaction rate.

6. Use the **collision theory** to explain why **increasing the temperature** usually increases the reaction rate.

7. Explain how a **catalyst** affects the activation energy for a chemical reaction.

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| 8. **On** the accompanying energy diagram, label the following items:  9. Draw and label what this diagram would look like if a catalyst was added to the reaction.  10. Graph reading  a. How much energy do the reactants have?    b. How much energy do the products have? |
| c. How much energy is required to activate this un-catalyzed reaction?  d. Will this reaction need to absorb energy or will it release energy to the environment? How do you know? |